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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/463,565	04/21/2001	Tatsuya Hashimoto	MAT-7886US	6486

7590

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EXAMINER

WINTER, GENTLE E

ART UNIT

PAPER NUMBER

1746

DATE MAILED: 05/02/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/463,565

Applicant(s)

HASHIMOTO ET AL.

Examiner

Gentle E. Winter

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) 6 and 7 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

Art Unit: 1746

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

2. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-5, and 8-10, drawn to an electrode plate having undergone a boehmite treatment;

3. Group II claim(s) 6-7, drawn to a method of producing an electrode plate including forming a chrome oxide layer.

4. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Boehmite treatment ( $\text{AlO}(\text{OH})$ ) is not the same as forming a chrome oxide layer.

5. During a telephone conversation with Lawrence E. Ashery on 3/27/2003 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-5 and 8-10, during a subsequent conversation, on 4/28/03 claims 8 and 9 were added to the claims of Group I. Affirmation of this election must be made by applicant in

Art Unit: 1746

replying to this Office action. Claims 6-7 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 4,105,511 to Nikaido et al.

8. As to claim 1, disclosing an electrode plate comprising a surface having formed thereon an oxide layer, the oxide layer being formed by applying a boehmite treatment to the electrode plate surface. The same is disclosed by Nikaido. More specifically, Nikaido discloses subjecting an aluminum or aluminum alloy to a boehmite treatment,

Art Unit: 1746

followed by electrolysis using the resulting aluminum or aluminum alloy as the electrode...thereby forming a new layer. See e.g. column 1, line 64 *et seq.*

9. As to claim 3, Nikaido discloses that the boehmite treating method produces a layer having a thickness of up to about 1.0 micron. See e.g. column 1, lines 35-43.

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-5 and 8-10 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent No. 6,153,337 to Carlson et al.

12. With specific respect to claim 1, the reference reads on the claims. Claim 1 discloses an electrode plate comprising a surface having formed thereon an oxide layer, the oxide layer being formed by applying a boehmite treatment to the electrode plate surface. Carlson discloses coating a cathode (i.e. electrode) with a boehmite coating (boehmite sol). Boehmite is an oxide of aluminum. See e.g. column 3, lines 22-34 and column 4, lines 28-32 and claims 54 and 62.

Art Unit: 1746

13. As to claim 2 disclosing that the electrode plate is included in the battery, the cathode is disclosed to be used in an “electric current producing cell”. See e.g. column 25, lines 29-39.

14. As to claim 3, disclosing that the oxide layer has a thickness of 0.5 microns-5 microns. The boehmite layer is disclosed to have a range of 1-25 and 5-15 microns, thus covering most of the claimed range. See e.g. column 4, lines 3-9.

15. As to claim 4, further limiting claim 2, disclosing that the oxide layer has a thickness of 0.5 microns-5 microns. The cathode discussed above with respect to claim 2 is coated as indicated as set forth in claim 3. Further, claim 102 at column 28, lines 41-43 disclose that the electric current producing cell boehmite layer is 5-15 microns.

16. As to claim 5, disclosing that the electrode plate is selected from the group consisting of a negative electrode plate and a positive electrode plate. Cathode was disclosed in the discussion at claim 1. See e.g. column 3, lines 22-34 and column 4, lines 28-32 and claims 54 and 62.

17. As to claim 8, disclosing that an electrode active material paste is on the oxide layer. It is noted that the method step of forming the paste, unless the step provides a different product, cannot be accorded patentable weight in device claims, as the device claims look to structure. The addition of a electrode active paste is disclosed generally starting at see column 1, line 57, and more specifically at e.g. column 2, line 40 *et seq.*

Art Unit: 1746

Seemingly, novelty resides in part in the forming of the paste on the oxide layer. If something unique and identifiable structurally differentiates the claimed device, the identification of that characteristic may distinguish the claim from the instant reference.

18. As to claim 9, further limiting claim 8, and disclosing that the paste is dried, the same is disclosed at e.g. column 4, line 17 *et seq.*

19. As to claim 10, disclosing a method for producing an electrode plate for a Li secondary battery the method comprising the steps of providing an electrode plate (cathode) forming an oxide layer on the electrode plate by applying a boehmite treatment to the electrode plate (coating with boehmite) applying a paste (sol) comprising an electrode active material (organic electrolyte) to the oxide layer and drying the paste (drying the coating). See e.g. column 25, lines 29-39 and 64-67.

### ***Conclusion***

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

21. United States Patent No. 2,859,148 discloses a method of producing a boehmite layer on aluminum foil, which is disclosed as an electrode see e.g. column 1, line 15 *et seq.*

22. United States Patent No. 6,210,831 discloses terms which are synonymous with pseudo-boehmite, include boehmite,  $\text{AlOOH}$ , and hydrated alumina. The patent discloses a method related to the fabrication of a solid composite cathode by a sol-gel method

Art Unit: 1746

wherein the sulfur-containing cathode active material, and optionally conductive fillers and binders, are suspended or dispersed in a liquid medium containing a colloidal sol of the non-electroactive particulate material of the present invention, for example, a boehmite. From the sol, during the drying process of the coating, a sol-gel or gel is formed resulting in an interconnected, rigid network, typically having sub-micron pores.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (703) 305-3403. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gentle E. Winter  
Examiner  
Art Unit 1746

April 29, 2003

A handwritten signature in black ink, appearing to read "Randy Gulakowski", is written over a horizontal line.

RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700